

**REMARKS**

As a preliminary matter, it is noted that an Information Disclosure Statement was filed on September 16, 2004. A copy of the IDS and stamped-post card showing receipt by the PTO is attached hereto for the Examiner's reference. It is respectfully requested that the Examiner provide Applicants an initialed copy of the IDS indicating that each of the prior art references cited therein have been considered and made of record.

Claims 1, 3 and 4 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Jeon '014 ("Jeon"). Claim 1 is independent. This rejection is respectfully traversed for the following reasons.

Claim 1 recites in pertinent part, "a zirconium oxide film and a high dielectric constant film which is formed of an oxide of a metal other than zirconium and substantially directly contacting the zirconium oxide film ..." (emphasis added). The Examiner has maintained the pending rejection by newly relying on layer 110rp as the claimed hafnium high dielectric constant film (the Examiner previously relied on layer 110c) which he asserts substantially directly contacts the alleged zirconium oxide film 110b.

However, Jeon expressly discloses distinct embodiments whereby the layers 110a and 110c are similar sub-layers (i.e., high-K or standard-K *silicon* layer) and layer 110b is a dissimilar sub-layer relative to layers 110a,c (i.e., standard-K *silicon* layer or high-K)(*see, e.g., col. 7, lines 5-14*). In this regard, the reaction product sub-layer 110rp necessarily contains material from the reacting sub-layers 110a,c and 110b. Accordingly, if layer 110b is taken to be the claimed zirconium oxide film as relied on by the Examiner in the pending rejection (with layers 110a,c consequently being standard-K silicon layers), then the reaction

product layer 110rp would be a zirconium silicate film rather than the claimed hafnium film layer. Indeed, Jeon expressly discloses such an embodiment at col. 8, lines 26-30.

On the other hand, if layer 110rp is taken to be the claimed hafnium silicate film as relied on by the Examiner in the pending rejection, then the layer 110b is necessarily a hafnium oxide film rather than the claimed zirconium film layer. Indeed, Jeon expressly discloses this embodiment at col. 8, lines 11-17.

Jeon does not disclose or suggest the **combination** of a zirconium oxide film and a high dielectric constant film which is formed of an oxide of a metal other than zirconium and substantially directly contacting the zirconium oxide film. Rather, Jeon discloses only silicon/hafnium and silicon/zirconium combinations, but is completely silent as to hafnium/zirconium combinations.

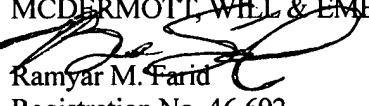
As described throughout Applicants' specification, the combination of hafnium and zirconium can help suppress oxidation of a silicon substrate by active oxygen or the like (*see, e.g.*, pages 11-12 of Applicants' specification). Applicants have recognized and considered this oxidation problem (*see* page 2, lines 7-8 of Applicants' specification), and only Applicants have conceived of the novel combination of elements which can provide the capability of enabling an effect whereby the oxidation can be suppressed.

As anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently (noting that "inherency may not be established by probabilities or possibilities", *Scaltech Inc. v. Retec/Tetra*, 178 F.3d 1378 (Fed. Cir. 1999)), in a single prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986), based on the forgoing, it is submitted that Jeon does not anticipate claim 1, nor any claim dependent thereon.

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplicatic Engineering Co.*, 819F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claim 1 is patentable for the reasons set forth above, it is respectfully submitted that all claims dependent thereon are also patentable. In addition, it is respectfully submitted that the dependent claims are patentable based on their own merits by adding novel and non-obvious features to the combination. Based on the foregoing, it is submitted that claims 1, 3 and 4 are patentable over Jeon. Accordingly, it is respectfully requested that the rejection under 35 U.S.C. § 102 be withdrawn.

#### CONCLUSION

Having fully and completely responded to the Office Action, Applicants submit that all of the claims are now in condition for allowance, an indication of which is respectfully solicited. If there are any outstanding issues that might be resolved by an interview or an Examiner's amendment, the Examiner is requested to call Applicants' attorney at the telephone number shown below. To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,  
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